

2008

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Recommended Citation

Bronin, Sara, "The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States" (2008). *Faculty Articles and Papers*. 382.

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Citation:

Sara C. Bronin, The Quiet Revolution Revived:
Sustainable Design, Land Use Regulation, and the
States, 93 Minn. L. Rev. 231 (2008)

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Thu Jun 21 14:42:22 2018

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Article

The Quiet Revolution Revived: Sustainable Design, Land Use Regulation, and the States

Sara C. Bronin[†]

In 1971, *The Quiet Revolution in Land Use Control* inspired numerous scholarly debates about the states' role in land use regulation.¹ In that book, Fred Bosselman and David Callies recognized that localities have long borrowed states' police power to regulate land use.² They nonetheless argued that certain land use issues, such as those involving the environment, transcended local government boundaries and competencies.³ A quiet revolution, the authors claimed, should occur to shift governmental authority from local governments to an authority which could more adequately address "extralocal" issues.⁴ They turned not to regional authorities or the federal government, but to the states, arguing that states should take back their police power to regulate extralocal issues in a manner that maintained two core values of the quiet revolution: the

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1. FRED BOSSELMAN & DAVID CALLIES, *THE QUIET REVOLUTION IN LAND USE CONTROL* (1971).

2. See *id.* at 1 ("The *ancien regime* being overthrown is the feudal system under which the entire pattern of land development has been controlled by thousands of individual local governments . . .").

3. See *id.* ("The tools of the revolution are new laws . . . sharing a common theme—the need to provide some degree of state or regional participation in the major decisions that affect the use of our increasingly limited supply of land.").

4. *Id.* at 3 (arguing that states "are the only existing political entities capable of devising innovative techniques and governmental structures to solve problems . . . beyond the capacity of local governments acting alone").

preservation of the existing land use system and the respect for local autonomy. Bosselman and Callies played the roles of both advocates and prophets, arguing that a shift from local to state control had already begun, and would and should continue.

Thirty-seven years later, their anticipated transformation has not yet occurred. Carol Rose has noted that since the quiet revolution was first heralded, state and regional governments have not limited—and in fact, may have expanded—local discretion with respect to land use decision making.⁵ She added that with the exception of a few large-scale projects controlled by the federal government, localities “continue to exercise considerable influence even where state boards make the ultimate decisions over major land development projects.”⁶ In 2002, David Callies himself acknowledged that localities play an increasingly important role in, among other areas, environmental protection.⁷ In other words, the quiet revolution failed to materialize.⁸

With the rise of sustainable design, however, it is time to revive some predictions about the quiet revolution.⁹ Green building is slowly transforming real estate development across the United States, bolstered by mounting evidence that conven-

5. See Carol M. Rose, *Planning and Dealing: Piecemeal Land Controls as a Problem of Local Legitimacy*, 71 CAL. L. REV. 837, 842–43 (1983).

6. Carol M. Rose, *New Models for Local Land Use Decisions*, 79 NW. U. L. REV. 1155, 1156 (1985) (focusing entirely on local modes of land use decision making).

7. David L. Callies, *The Quiet Revolution Redux: How Selected Local Governments Have Fared*, 20 PACE ENVTL. L. REV. 277, 296–97 (2002) (“Local land use controls have not withered away . . . [N]ot only have traditional land use controls such as zoning and more flexible ‘growth management’ plans and regulations been used, but there is a growing trend toward environmental protection at the local level as well.”).

8. See Shelley Ross Saxer, *Local Autonomy or Regionalism?: Sharing the Benefits and Burdens of Suburban Commercial Development*, 30 IND. L. REV. 659, 678 (1997) (“This shift in responsibility from local to state control has not yet occurred as predicted, though some scholars continue to see a trend in growth management programs toward greater state intervention in the local planning and implementation process.”).

9. This Article uses the terms “green building” and “sustainable design” interchangeably. For a broad definition of green building, see OFFICE OF THE FED. ENVTL. EXECUTIVE, *THE FEDERAL COMMITMENT TO GREEN BUILDING: EXPERIENCE AND EXPECTATIONS*, at viii, http://ofee.gov/sb/fgb_report.pdf (last visited Oct. 16, 2008) (defining green building as “the practice of (1) increasing the efficiency with which buildings and their sites use energy, water, and materials, and (2) reducing building impacts on human health and the environment, through better siting, design, construction, operation, maintenance, and removal—the complete building life cycle”).

tional construction techniques substantially and unnecessarily damage the environment.¹⁰ The opportunity to expand the green movement presents itself in the near term: over the next twenty years, seventy-five percent of building stock nationally will be new or replaced.¹¹ If these buildings are built green, practical and ideological challenges to our current system of regulating land use will continue to mount. This Article examines those challenges, which occur primarily as a result of the “locality”—the municipal, town, special district, or county administration and enforcement—of “traditional” land use laws such as zoning ordinances and design controls.¹² It uses the green-building example to rebut the post-quiet-revolution scholarly presumption that land use is, or should be, an inherently local function.¹³

Currently, much of what can be called traditional land use regulation—zoning ordinances and design controls, but not environmental management, building code, endangered species, or housing laws—occurs at the local level.¹⁴ Zoning refers to the local government power to designate, with maps and with text, the areas in which certain permitted uses—such as industrial, residential, commercial, retail, or recreational—can occur.¹⁵ Design controls include aesthetic review laws, which allow localities to approve façade and landscape designs, and historic preservation ordinances, which dictate how construction must occur in a designated historic area. As written and enforced, zoning and design control laws currently create unnecessary conflict between the desire to live in safe, attractive, and culturally rich communities, and the desire to make those communities environmentally responsible. This tension raises the question: how should our traditional land use laws change in light

10. See *infra* Part II.B.

11. Bureau of Nat'l Affairs, *Green Buildings Helping the Environment, the Bottom Line*, ENVTL. COMPLIANCE BULL., June 18, 2007, at 208, 208.

12. See *infra* Part III.

13. See *infra* Part V.

14. See A. Dan Tarlock, *Land Use Regulation: The Weak Link in Environmental Protection*, 82 WASH. L. REV. 651, 652–53 (2007) (explaining the difference between environmental and land use law in light of the type of property being regulated). Unlike land, “[a]ir and water are and always have been common property resources, and users have never had any expectation of exclusive control.” *Id.*

15. This Article focuses on Euclidean zoning, named for the Supreme Court decision which confirmed the legality of zoning. See *Vill. of Euclid v. Ambler Realty Co.*, 272 U.S. 365 (1926).

of growing evidence of the negative externalities of conventional construction?

Part I of this Article restates the first component of Boselman and Callies' argument: the recognition that although land use regulation is part of states' police power, such regulation by and large takes place at the local level. This assignment of power results in part from tradition and history, on the one hand, and the persistent perception that the land use regulatory function is a matter of inherent local autonomy, on the other. Part I examines these common explanations for the locality of land use regulation, setting forth the central themes to which the rest of this Article responds.

Part II analyzes the significance of the green-building movement—the greatest challenge to the long-accepted locality of traditional land use regulation. Reviving the second component of the argument for the quiet revolution (the definition of the extralocal problem), Part II defines green building by referencing widely accepted industry standards. It then examines the significant negative externalities of conventional construction. It argues that, as evidence of these negative externalities mounts, landowners, including the government, will gravitate toward green building.¹⁶ It concludes, as a practical matter, the construction industry is poised to shift dramatically, and that this shift will increase the tension with existing land use regimes.

Part III takes up the third component of the argument for the quiet revolution: namely, the idea that local governments are ill-equipped to handle certain extralocal land use problems. Part III explains how the shift toward green building has already created tension with respect to the administration and enforcement of traditional land use regulation. Some localities bar green-building technologies in the laws as written or as applied. Many more localities—perhaps as a result of institutional inertia—simply ignore green building and fail to address the unintended barriers to green building raised by local ordinances. Those that allow green building often allow it piecemeal, but fail to develop comprehensive rules. And although a handful of communities have attempted to address green building through comprehensive legal regimes, localities are so autonomous, and local laws so varied, that it is difficult to transport

16. This view is supported by the finding that governmental actors—which are immune from the land use rules they impose on private actors—have integrated green building into public projects.

best practices across jurisdictional lines. The evidence reveals that the dominant mode of land use regulation nationwide bars the reforms that environmentalists and the building industry have worked together to develop.

Given the failures of local governments to facilitate green building, Part IV applies the fourth part of Bosselman and Calties' argument: when the consequences of land use laws extend beyond local boundaries, extralocal regulation should be considered. In considering the various levels at which reform may occur, it is important to take a pragmatic approach. The creation of new governmental institutions at the regional level—long suggested by numerous scholars to address all types of local government woes—is politically infeasible almost everywhere. Similarly, federalizing traditional land use regulation would likely be far too radical a transformation (even if constitutional), and would meet with resistance from both localities and states. Instead of either a regional or national approach, Part V adopts the fifth and final piece of the argument for the quiet revolution and asserts that states must take back at least some of their powers to regulate land use and facilitate green building as a solution to the significant extralocal negative externalities of conventional construction.

I. THE LOCALITY OF LAND USE LAWS

To understand why the quiet revolution would still represent a radical transformation so many years after it was first predicted, one must understand the ongoing entrenchment of the locality of land use regulation. Most scholars recognize this entrenchment and argue that it should persist; Professors Richard Briffault, Carol Rose, and Dan Tarlock, for example, assert that land use control is "the most important local regulatory power,"¹⁷ and "has always been an intensely local area of the law,"¹⁸ and "should be controlled at the lowest level of government, if at all."¹⁹ Their critiques underscore the two primary arguments favoring local control over land use law. First, the

17. Richard Briffault, *Our Localism: Part I—The Structure of Local Government Law*, 90 COLUM. L. REV. 1, 3 (1990) [hereinafter Briffault, *Our Localism—Part I*]; see also Richard Briffault, *Smart Growth and American Land Use Law*, 21 ST. LOUIS U. PUB. L. REV. 253, 270 (2002) ("States as well as local governments have long supported a strong role for local governments in land use regulation.").

18. Rose, *supra* note 5, at 839.

19. Tarlock, *supra* note 14, at 653.

historical argument: land use functions have always been performed by localities. Second, the autonomy argument: land use is a matter of inherent local autonomy. Exploring both of these explanations confirms that the prevailing descriptive and normative view of land use involves, first and foremost, local control.

A. THE HISTORICAL ARGUMENT FOR LOCALITY

For centuries now, land use regulation, administration, and enforcement has centered around localities. Such regulation is rooted in the early days of the Republic, when the first local ordinances governing the construction of buildings were passed.²⁰ These eighteenth century laws differed in form from modern zoning and design control but nonetheless governed the appearance of structures, their use, and their effect on neighbors.²¹ By the early nineteenth century, numerous American cities had passed building-related ordinances to protect the public from the spread of fire.²² Municipal governments in Boston and Washington, D.C., restricted the heights and bulks of buildings, just as modern zoning codes do.²³ According to historian William Novak, who studied these laws in the context of social history, such laws “embodied the concerns for public welfare, local self-government, common law, and the relative nature of property at the heart of the vision of social governance.”²⁴ Even in the early days of land use regulation, the locality of such laws was one of their most significant features.²⁵

In addition to a wide variety of public laws, nineteenth century localities passed, and courts interpreted, nuisance laws which gave private citizens a right of action against landowners

20. See John F. Hart, *Land Use Law in the Early Republic and the Original Meaning of the Takings Clause*, 94 NW. U. L. REV. 1099, 1107–31 (2000) (tracing the historical roots of land use regulation to correct the history used by scholars who support an expansive reading of the regulatory takings clause).

21. See *id.*

22. See WILLIAM J. NOVAK, *THE PEOPLE'S WELFARE: LAW AND REGULATION IN NINETEENTH-CENTURY AMERICA* 56–58 (1996) (identifying early building-related fire ordinances and stating that “[f]ire laws proliferated in almost every major settlement”).

23. See ROBERT C. ELLICKSON & VICKI L. BEEN, *LAND USE CONTROLS* 75 (3d ed. 2005).

24. NOVAK, *supra* note 22, at 80.

25. See BOSSELMAN & CALLIES, *supra* note 1, at 2 (“From the beginning the state governments saw land use control as an urban problem.”).

who created a substantial, unreasonable interference with their private use or enjoyment of their land.²⁶ As cities and towns grew larger, nuisance suits became more and more unwieldy as a system of land use regulation; suits were costly to bring or defend, and, without uniform rules, outcomes were uncertain.²⁷ During the early twentieth century, many cities considered alternatives to the decentralized system of nuisance law. Zoning ordinances emerged as a means of handling land use decisions in a more comprehensive and orderly way. In 1926, the Supreme Court ruled that local zoning rules were an acceptable use of the states' police power.²⁸ The same year, the federal government published a Standard State Zoning Enabling Act (SZEa), which states could adopt and which allowed localities to have exclusive power to zone.²⁹ The text of the SZEa allows localities to regulate the height, size, floor to area ratio, yards, open spaces, density, location, and use of individual structures.³⁰ All fifty states have adopted some version of the SZEa, and localities use the SZEa as a baseline but tend to adopt numerous local variants of the standard language.³¹

While modern zoning laws emerged in the early twentieth century, modern design controls materialized about a half century later. Nineteenth century courts questioned localities' abilities to control aesthetics,³² but by the beginning of the twentieth century, the City Beautiful movement and the advent of

26. See generally Robert G. Bone, *Normative Theory and Legal Doctrine in American Nuisance Law: 1850 to 1920*, 59 S. CAL. L. REV. 1101 (1986) (describing courts' approaches to private nuisance and offering three models of judicial decision making).

27. Cf. *id.* at 1124 ("Nineteenth century nuisance models based on natural property rights spawned a morass of doctrine incapable of rationalization within a single internally consistent normative theory."). Under nuisance theory, a polluting factory might not be able to locate next to a residence, but only if the homeowner sued in court and the court found that the factory created a nuisance which offended, interfered with, or encroached upon the homeowner's use of his land.

28. *Vill. of Euclid v. Ambler Realty Co.*, 272 U.S. 365 (1926).

29. ADVISORY COMM. ON ZONING, U.S. DEP'T OF COMMERCE, A STANDARD STATE ZONING ENABLING ACT (1926).

30. *Id.* § 1.

31. See ELLICKSON & BEEN, *supra* note 23, at 74-76 (describing the states' relationship with the Standard State Zoning Enabling Act and the manner in which states modify it).

32. See, e.g., *City of Newton v. Belger*, 10 N.E. 464, 467 (Mass. 1887) (deciding that a law permitting city alderman to deny building permits for homes deemed not "handsome" "is broader than the [state] statute [authorizing safety controls] in its scope, and cannot be justified as a reasonable exercise of the authority conferred by the statute").

zoning boosted public and judicial support for design controls. Today, a large and growing number of communities impose design control rules, separate from zoning ordinances, which consider primarily aesthetic issues and which add an additional layer of review to the construction process. Modern design controls attempt to ensure that a proposed construction project fits in with, or at least is not incompatible with, surrounding structures, and include rules for a building's exterior.³³ As is the case with zoning codes, these laws are enacted by localities through powers granted by state enabling acts. No state directly regulates either zoning or design controls, although limited guidance of local decision making occurs in the text of the enabling acts.

B. THE AUTONOMY ARGUMENT FOR LOCALITY

Aside from the historical fact that land use controls originated at the local level, another explanation for the view that land use is an inherently local function is that land use decision making implicates local autonomy. Scholars have argued that localities should have sole decision-making powers over land use because local individuals understand the unique characteristics of their land better than outsiders do and can therefore make fairer or more competent decisions.³⁴ By the same logic, outsiders lack an understanding of how decisions about land use could impact the aesthetic character, property values, and demographic makeup of the local community.³⁵

Moreover, personal or individual autonomy may be threatened by extralocal regulation of land use. The theoretical stage

33. Design controls do not typically apply to the interior of a building, although some historic interiors may be governed by special rules which encourage their preservation. Restrictions do not apply to "invisible" green technologies such as geothermal wells, drilled around a structure to capture heating and cooling energy from groundwater. See, e.g., Scott H. Rothstein, Comment, *Takings Jurisprudence Comes in from the Cold: Preserving Interiors Through Landmark Designation*, 26 CONN. L. REV. 1105, 1110 (1994).

34. See, e.g., Eric T. Freyfogle, *The Particulars of Owning*, 25 ECOLOGY L.Q. 574, 580 (1999) ("Sensible land use decisions require knowledge of the land itself, in its many variations. One can categorize land parcels based on slope, soil type, drainage, and vegetation, but no list of factors can ever capture the land's full diversity. Local people typically know the land better than outsiders.").

35. There are more sinister implications of the local autonomy argument, which this Article does not consider. For example, zoning has often been used as a tool to segregate communities by race and class. See Saxer, *supra* note 8, at 681-82 (asserting that the demand for local control is a guise for economic parochialism).

for this argument was set by, among others, Margaret Jane Radin, who links property ownership, and the associated rights thereof, with "personhood."³⁶ She argues that "to achieve proper self-development—to be a *person*—an individual needs some control over resources in the external environment."³⁷ Such control takes the form of property rights, which include the rights granted (or curbed) by land use regulations such as zoning and design controls. Local control allows property owners to be closer to those who affect these important rights. A desire for control over property is especially strong among homeowners, according to William Fischel's "homevoter hypothesis." Fischel describes homeowners as engaging the civic sphere at the local level primarily to protect the value of their homes.³⁸ His work suggests that landowners will prefer a high degree of local control of land use on the theory that local governments' small size will ensure that their voices are heard.³⁹ In theory, such small size facilitates the exchange of ideas, face-to-face interaction, education about the issues, greater accessibility, and high levels of participation—especially when the population served is small enough to share norms and ideals.⁴⁰ The work of both Radin and Fischel therefore suggests that individual autonomy is protected when land use regulations are made and enforced on a local level. Other scholars support this view. Professor Gerald Frug has argued that the autonomy argument derives from an emotional attachment to local decision making.⁴¹ And Richard Briffault has said that land use rules "form the heart of local autonomy since [they are] closely connected to core areas of personal autonomy."⁴² In the view of many scholars, then, localities must maintain their ability to regulate land use,

36. Margaret Jane Radin, *Property and Personhood*, 34 STAN. L. REV. 957, 957 (1982).

37. *Id.*; see also *id.* at 991–1002 (arguing that the Fourth Amendment protection against searches of homes, the expansion of tenants' rights, and increased privacy rights in the home are three areas of law premised on the notion of personhood).

38. See WILLIAM A. FISCHEL, THE HOMEVOTER HYPOTHESIS 51–57 (2001) (describing how fiscal zoning is used by homeowners who vote to preserve their own homes' property values).

39. *Id.* at 5.

40. See Richard Briffault, *Our Localism: Part II—Localism and Legal Theory*, 90 COLUM. L. REV. 346, 396–97 (1990) (summarizing the views of Professor Gerald Frug and other scholars on this point).

41. Gerald E. Frug, *Beyond Regional Government*, 115 HARV. L. REV. 1763, 1789 (2002).

42. Briffault, *supra* note 40, at 452.

or their autonomy as a political unit—as well as their citizens' individual autonomy—would be threatened.

In light of the autonomy and history justifications of the locality of land use control, states have been reluctant to interfere.⁴³ Briffault adds that state legislators may believe that if they became more involved in land use regulation, their efforts would be struck down by courts: both state and federal courts, Briffault observes, frequently weigh the value of local autonomy, including autonomy in land use regulations, more heavily than even equality or individual rights.⁴⁴ Only rarely do challenges of local power ever make it to court. Instead, the locality of land use laws is by and large taken for granted as a historical and political inevitability.

II. THE EXTRALOCAL IMPACT OF CONVENTIONAL CONSTRUCTION

The rapidly growing green-building movement challenges the notion that traditional land use regulation is or should be an exclusively local function. The movement has brought the environmental consequences of conventional construction to the fore and exposed the inadequacy of local legal regimes to respond to private land use decisions with significant extralocal externalities. This Part sets the stage for Part III's analysis of the tensions between green building and existing law by defining both green building on the one hand, and conventional construction on the other. Studies underscore the stark differences between these two modes of construction and enumerate the benefits of sustainable design. As these benefits become more widely known, landowners will increasingly seek to build green, just as one major player, the government, has begun to do.

43. Briffault, *Our Localism—Part I*, *supra* note 17, at 113 (“State governments rarely consider, let alone adopt, measures that directly constrain local legal authority.”); Frug, *supra* note 41, at 1789 (“Having delegated considerable authority over these issues to local governments, state governments are largely unwilling to override their decisions even though they have the power to do so.”).

44. Briffault, *Our Localism—Part I*, *supra* note 17, at 112 (asserting that courts “frequently adhere to a localist view of local power, holding local autonomy, particularly local control of the public schools and land use, to be a legal value potent enough to withstand challenges based on claims of equality, individual rights and local accountability for the external effects of local actions”).

A. A GREEN-BUILDING DEFINITION

While there are innumerable innovative ways one can build green, the best and most common definition of green building can be found in the Leadership in Energy and Environmental Design (LEED) program developed by the nonprofit, nongovernmental U.S. Green Building Council.⁴⁵ The LEED program evaluates the sustainable features of new construction by giving points in six areas: (1) location and siting; (2) water efficiency; (3) energy and atmosphere; (4) materials and resources; (5) indoor environmental quality; and (6) innovation and design.⁴⁶ Property owners can petition the U.S. Green Building Council for certification indicating that their buildings have achieved a certain number of points within each of these six areas.⁴⁷

The scorecards for each of the six LEED areas illuminate the principles of sustainable design. To receive the most LEED points for location and siting, for example, a project must protect or restore open space, manage and treat stormwater to certain standards, reduce the heat island effect, and minimize light pollution.⁴⁸ To obtain a high score in the area of materials and resources, a project must divert at least fifty percent of construction waste; use local, rapidly renewable, or recycled materials; or reuse existing structures and resources.⁴⁹ Indoor environmental quality can rate highly if a project provides adequate ventilation and carbon dioxide monitoring; uses low-emissions carpets, composite woods, and paint; provides daylighting and views for most interior spaces; and monitors thermal comfort, indoor chemicals, and pollutants.⁵⁰ LEED also encourages water-efficient landscaping; reduced water usage; energy-efficient technologies such as solar panels, fuel cells,

45. See, e.g., Brian D. Anderson, *Legal and Business Issues of Green Building*, WIS. LAW., Aug. 2006, at 10, 12 ("[T]he U.S. Green Building Council has taken the lead in establishing a formalized green building rating system.").

46. U.S. GREEN BLDG. COUNCIL, GREEN BUILDING RATING SYSTEM FOR NEW CONSTRUCTION & MAJOR RENOVATIONS (LEED-NC) VERSION 2.1 v-vi (2002, rev. 2003), available at https://www.usgbc.org/Docs/LEEDdocs/LEED_RS_v2-1.pdf.

47. LEED levels include the basic certification level, then silver, gold, and platinum. *Id.* at vi.

48. *Id.* at v.

49. *Id.* at vi.

50. *Id.*

and geothermal wells; and innovative design.⁵¹ While the foregoing list is by no means exhaustive, it demonstrates the range of methods that might be used to “green” a building.

The LEED rating system has not been immune to criticism. Some commentators have said that the LEED certification process is both too easy because the lowest threshold for LEED compliance is too low, and too hard because the application for LEED certification is long, costly, and confusing.⁵² Some say it unfairly gives expensive, high-impact sustainable features (such as solar panels) the same number of points as inexpensive, low-impact features (such as low-emissions paints), a situation which influences landowners to choose the less-expensive items, while at the same time diminishing the impact of LEED-certified structures.⁵³ In addition, money spent on the certification process might be better used to improve the building’s sustainable features. LEED also draws criticism because it only accounts for the construction process and does not consider a building’s ongoing operation and maintenance.⁵⁴ Still others may worry about the consequences of integrating LEED standards into the law, because LEED is run by a nonprofit organization with no accountability to any level of government for changes that may occur in LEED standards over time. Despite the criticisms, however, LEED serves as the prevailing green-building ratings system and therefore is the most effective reference point for defining green building. Other programs exist, but none is as widely used as LEED.⁵⁵

51. See *id.* at v–vi.

52. See, e.g., Auden Schendler & Randy Udall, *LEED Is Broken; Let’s Fix It*, GRIST, Oct. 26, 2005, <http://www.grist.org/comments/soapbox/2005/10/26/leed/index1.html> (“LEED has become costly, slow, brutal, confusing, and unwieldy, a death march for applicants administered by a soviet-style [sic] bureaucracy that makes green building more difficult than it needs to be . . .”).

53. Theodore C. Taub, *Materials for Discussion Regarding Green Buildings*, 2006 A.B.A.-A.L.I. COURSE OF STUDY 399, 409, available at SM004 ALI-ABA 399 (Westlaw).

54. *Id.*

55. The National Association of Home Builders has developed a set of green-building guidelines targeted for the mainstream home builder. See NAT’L ASS’N OF HOME BUILDERS, NAHB MODEL GREEN HOME BUILDING GUIDELINES (2006), available at http://www.nahbgreen.org/content/pdf/nahb_guidelines.pdf. The Green Globes Program has been developed to lower administrative costs for applicants as compared to LEED. See Green Building Initiative, What is Green Globes?, <http://www.greenglobes.com/about.asp> (last visited Oct. 16, 2008). A handful of projects in this country have utilized Sweden’s “The Natural Step,” a broad environmental initiative based on scientific consensus with some impact on green building. See Judith Perhay, *The Natu-*

B. THE NEGATIVE EXTERNALITIES OF CONVENTIONAL CONSTRUCTION

With this definition of green building, it is possible to contrast green building with conventional construction, and consider the ways in which the impact of the construction and operation of conventionally designed buildings extends far beyond local boundaries.

Construction is the nation's largest manufacturing activity, using sixty percent of the nonfood, nonfuel raw materials consumed each year.⁵⁶ Worldwide, buildings and the construction of buildings account for one-sixth of the world's freshwater withdrawals, forty percent of the world's material and energy flows, and twenty-five percent of wood cut for nonfuel uses.⁵⁷ In conventional buildings, materials are often brought in from long distances, with project managers giving little or no consideration to the availability of local alternatives or to the amount of energy used to transport materials. Sustainable-design principles, by contrast, recognize that the use of local materials helps the environment by reducing the number of vehicle miles attributed to a project, and LEED awards points for the use of materials extracted and manufactured within a five hundred mile radius of the registered project.⁵⁸ Similarly, few conventional projects incorporate recycled materials to a significant degree—unlike LEED certified projects, nearly all of which incorporate recycled materials during construction, and all of which must provide recycling facilities to occupants once construction is completed.⁵⁹

ral Step: A Scientific and Pragmatic Framework for a Sustainable Society, 33 S.U. L. REV. 249, 282, 295 (2006) (describing the Natural Step initiative and the impact on energy efficiency and ninety-seven percent recyclability of rooms in the Scandic international hotel chain).

56. *Materials Flow and Sustainability*, FACT SHEET (U.S. Geological Survey), June 1998, <http://pubs.usgs.gov/fs/fs-0068-98/fs-0068-98.pdf>.

57. See David Malin Roodman & Nicholas Lenssen, *A Building Revolution: How Ecology and Health Concerns Are Transforming Construction* 5 (Worldwatch Paper No. 124, 1995).

58. U.S. GREEN BLDG. COUNCIL, *supra* note 46, at 43–44 (awarding one point if such materials account for twenty percent of the materials used and an additional point if such materials account for fifty percent of the materials used).

59. *Id.* at 37–42 (requiring that builders utilize recycling areas and allowing builders to receive more credits for reusing materials and incorporating recycled materials).

Construction is also one of the largest sources of solid waste, annually generating 136 million tons of waste.⁶⁰ In conventional projects, such waste is rarely recycled or salvaged. LEED, however, awards points to property owners who recycle construction materials, maintain between seventy-five percent and one hundred percent of existing walls and roof structures, maintain fifty percent of nonstructural interior elements, use five to ten percent of salvaged or refurbished building materials, and use five to ten percent of recycled materials.⁶¹

Post construction, conventionally designed buildings consume massive amounts of natural resources. Large buildings require millions of gallons of water to operate basic systems and to meet inhabitants' needs; commercial buildings alone use nearly twenty percent of our nation's drinking water supply annually.⁶² Keeping buildings lit, cool, warm, or otherwise habitable takes up thirty-six percent of primary energy use, and two-thirds of all electricity use.⁶³ LEED certified projects consume substantially less water and energy, which translates into operating savings for the owner: studies have shown that such projects generate utility bills (a reasonable proxy for con-

60. FRANKLIN ASSOCS., CHARACTERIZATION OF BUILDING-RELATED CONSTRUCTION AND DEMOLITION DEBRIS IN THE UNITED STATES ES-2 (1998), <http://www.epa.gov/osw/hazard/generation/sqg/c&d-rpt.pdf> (indicating in a report prepared for the EPA that demolition accounts for forty-eight percent of this waste, renovation forty-four percent, and construction site waste eight percent); OFFICE OF SOLID WASTE, U.S. ENVTL. PROT. AGENCY, MUNICIPAL SOLID WASTE IN THE UNITED STATES, 2005 FACTS AND FIGURES 4 (2006), available at <http://www.epa.gov/osw/nonhaz/municipal/pubs/mswchar05.pdf> (providing a figure for municipal solid waste, 245.7 million tons, excluding construction and demolition debris and certain industrial wastes); see also Charles J. Kibert, *Policy Instruments for a Sustainable Built Environment*, 17 J. LAND USE & ENVTL. L. 379, 380 (2002) (indicating that over 2.1 billion metric tons of materials are incorporated into buildings and infrastructure each year).

61. U.S. GREEN BLDG. COUNCIL, *supra* note 46, at 34–36, 39–42.

62. Energy Star, The First Step to Improving Water Efficiency, http://www.energystar.gov/index.cfm?c=business.bus_water (last visited Oct. 16, 2008).

63. Stephanie J. Battles & Eugene M. Burns, Trends in Building-Related Energy and Carbon Emissions: Actual and Alternate Scenarios (Aug. 21, 2000), <http://www.eia.doe.gov/emeu/efficiency/aceee2000.html> (discussing primary energy use). “Primary energy is the amount of site or delivered energy plus losses that occur in the generation, transmission, and distribution of the energy.” *Id.* at n.2; see also Smart Communities Network, Green Buildings Introduction, <http://www.smartcommunities.ncat.org/buildings/gbintro.shtml> (last visited Oct. 16, 2008) (discussing electricity use).

sumption) thirty to fifty percent less than utility bills for conventional buildings.⁶⁴

The postconstruction operation of buildings also has a substantial impact on air quality. Buildings generate thirty-five to forty percent of the nation's carbon dioxide emissions (greenhouse gases), along with forty-nine percent of sulfur dioxide emissions, twenty-five percent of nitrous oxide emissions, and ten percent of particulate emissions.⁶⁵

In light of such statistics, the value of sustainable design is clear. Green building reduces both the amount of waste that demolition and new construction produce and the amount of resources consumed over the life of the building. In addition to minimizing negative externalities, green building creates significant benefits to private actors. Chief among these are economic benefits, despite the perception that green building is excessively costly.⁶⁶ Recent studies show that the cost of green commercial or institutional buildings ranges from no more costly to approximately two percent more costly than conventional versions of those buildings.⁶⁷ Even when the up-front cost of

64. See Bureau of Nat'l Affairs, *supra* note 11.

65. Smart Communities Network, *supra* note 63; see also Battles & Burns, *supra* note 63 (noting that between 1990 and 2000 buildings accounted for forty-eight percent of the increase in U.S. carbon emissions).

66. See, e.g., Jennifer R. DuBose et al., *Analysis of State-Wide Green Building Policies*, J. GREEN BUILDING, Spring 2007, at 161, 173-74 ("[D]ocumentation required for LEED certification is sometimes perceived as cumbersome and costly. . . . Cost is one of the biggest inhibitors to green building (with or without LEED certification)."); Rosemary Winters, "Green" Building Products Can Prove Profitable in Salt Lake City, SALT LAKE TRIB., Feb. 24, 2004, at E1 ("One of the largest barriers to popularizing green-building techniques is the perception that such techniques cost more."); Nat'l Ass'n of Home Builders, Codes and Standards, <http://www.nahb.org/generic.aspx?genericContentID=3093&print=true> (last visited Oct. 16, 2008) (describing the need for cost-effective green-building guidelines as one of the National Association of Home Builders' policy concerns).

67. GREG KATS ET AL., THE COSTS AND FINANCIAL BENEFITS OF GREEN BUILDINGS 15 (2003), <http://www.usgbc.org/Docs/News/News477.pdf> (studying thirty-three office and school projects to come up with an average cost premium of 1.84 percent on green buildings); LISA FAY MATTHIESON & PETER MORRIS, COSTING GREEN: A COMPREHENSIVE COST DATABASE AND BUDGETING METHODOLOGY 3 (2004), http://www.usgbc.org/Docs/Resources/Cost_of_Green_Full.pdf (analyzing six hundred projects located in nineteen states and concluding that "many projects achieve sustainable design within their initial budget, or with very small supplemental funding"). The cost premium for green building is likely to steadily fall because the cost of green-building materials tends to drop over time. See, e.g., Roodman & Lenssen, *supra* note 57, at 43 (noting that between 1980 and 1995 the cost of producing electricity from solar panels fell ninety percent due to technological advances and improved

green buildings is marginally higher, green buildings use energy reducing, emissions reducing, and water conserving measures that substantially reduce operating costs over the life of a building. Such savings have been estimated to be at least ten times the amount of the initial investment.⁶⁸ A less obvious but potentially greater financial benefit relates to productivity and health, which accounts for up to seventy percent of the overall financial benefit of green building.⁶⁹ In workplace environments with effective ventilation, natural or adequate lighting, and high-quality indoor air, worker productivity is shown to increase by six to sixteen percent.⁷⁰ Absenteeism and employee turnover rates are reduced.⁷¹ Clean, healthy buildings can significantly improve the quality of life of the average American, who spends ninety percent of her time indoors.⁷²

C. GOVERNMENT AS GREEN BUILDER

It is easy to see why more and more landowners are considering green building. The public sector has begun to recognize the obvious benefits of incorporating sustainability into public projects. This Article, of course, is focused on how governments affect the adoption of green building by private actors, not public actors.⁷³ Yet the trends in public construction should inform

manufacturing techniques).

68. See KATS ET AL., *supra* note 67, at v.

69. *Id.* at 85.

70. PUB. TECH., INC. & U.S. GREEN BLDG. COUNCIL, SUSTAINABLE BUILDING TECHNICAL MANUAL xxi (1996), available at <http://www.wbdg.org/ccb/SUSTDGN/sbt.pdf>; see also KATS ET AL., *supra* note 67, at 65 (restating eight studies which indicated that improved lighting control, including more natural light, increased worker productivity by a mean of 7.1 percent).

71. See Barnaby J. Feder, *Environmentally Conscious Developers Try to Turn Green Into Platinum*, N.Y. TIMES, Aug. 25, 2004, at C5 (quoting Greg Kats).

72. See OFFICE OF AIR AND RADIATION, U.S. ENVTL. PROT. AGENCY, THE INSIDE STORY: A GUIDE TO INDOOR AIR QUALITY, <http://www.epa.gov/iaq/pubs/inside.html> (last visited Oct. 16, 2008) (citing the ninety percent figure and describing the health concerns associated with indoor air pollution).

73. This Article does not address homeowners associations, which are governed by a resident board and, according to the Community Associations Institute, now number over three hundred thousand. Cmty. Ass'ns Inst., Industry Data, <http://www.caionline.org/about/facts.cfm> (last visited Oct. 16, 2008). Homeowners associations are sometimes governed alongside local governments by statewide legislation this Article attempts to promote. See, e.g., Traci Watson, *States Remove Local Barriers to Eco-Friendly Homes*, USA TODAY, May 14, 2008, at A2 ("Since 2005, eight states—including four last year—have enacted laws to abolish stringent rules imposed by some homeowners associations and local agencies on residents who want to power their homes with the

this study. Federal, state, and local governments own a tremendous amount of real estate in the United States, including six hundred and thirty-five thousand structures totaling over fifteen billion square feet.⁷⁴ Each level of government is well-suited to maximize the environmental and economic efficiencies presented by green building for four reasons. First, governments own their properties for long periods and can reap the benefits from up-front investment in green building over time.⁷⁵ Second, governments can negotiate better prices from green manufacturers because they can purchase green products in bulk, lowering costs.⁷⁶ Third, public officials may reap additional benefits from green building in the form of public approval.⁷⁷ Fourth, and most significantly for the purposes of this Article, governments are typically not subject to traditional land use laws, making it easier for governments to build green.

Perhaps for these reasons as many as twenty percent of all new government buildings are built to sustainable standards.⁷⁸ The federal government—which owns nearly three billion square feet of building assets—has made concerted efforts to implement varying degrees of sustainable design in all of its newly constructed or newly rehabilitated facilities.⁷⁹ Several states, including California, Washington, and Connecticut,

sun or wind.”); see also Robert C. Ellickson, *Cities and Homeowners Associations*, 130 U. PA. L. REV. 1519, 1568–80 (1982) (describing the powers of homeowners associations relative to cities’ powers).

74. See ENERGY INFO. ADMIN., 2003 COMMERCIAL BUILDINGS ENERGY CONSUMPTION SURVEY: DETAILED TABLES 117, 125 (2006), available at http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/pdf2003/alltables.pdf (indicating that local governments own nearly ten times as many buildings as the federal government and over twice as much square footage as state governments).

75. See *supra* Part I.

76. See, e.g., KATS ET AL., *supra* note 67, at 13 (attributing Pennsylvania’s success in building green structures to the state’s ability to negotiate with green product manufacturers).

77. In California, for example, “politicians vie to out-green one another. Some 40 of its legislators drive hybrid cars. [Governor] Schwarzenegger, not to be bested, has converted one of his fuel-swigging Hummers to run on hydrogen.” J. Jared Snyder, *Regional and State Programs: Measuring, Allocating, Trading, and Complying*, 2007 A.B.A.-A.L.I. COURSE OF STUDY 91, available at SM106 ALI-ABA 91 (Westlaw).

78. Feder, *supra* note 71.

79. See FED. REAL PROP. COUNCIL, FY 2005 FEDERAL REAL PROPERTY REPORT 13 (2006), available at http://www.gsa.gov/gsa/cm_attachments/GSA_DOCUMENT/FRPR_5-30_updated_R2872-m_0Z5RDZ-i34K-pR.pdf (citing a three billion figure).

have mandated that all state buildings meet LEED criteria.⁸⁰ Even some local governments have joined the trend: the American Institute of Architects identifies over seventy localities which have implemented some green requirements for municipal buildings.⁸¹ Chicago officials, for example, use green products in all affordable housing projects, while Boston has mandated that, by 2012, fifteen percent of electricity consumed by municipal buildings must come from renewable sources such as solar, wind, and hydro power.⁸² As of January 1, 2007, almost all New York City municipal buildings must meet minimum sustainable-design criteria.⁸³

Institutional and commercial private actors considering green building may wish to build green for many of the same reasons as public actors. But while green projects by private actors are growing in number, the private sector lags the public sector in green building. The next Section argues that responsibility for the relative lag lies, at least in part, with ambiguous, unfavorable, and selectively interpreted land use regulation at the local level. Without comprehensive reform, tensions between private actors and local governments will likely increase in coming years as local land use laws thwart private builders' growing interest in building green.

80. See Cal. Exec. Order No. S-20-04 (Dec. 14, 2004), available at <http://www.dot.ca.gov/hq/energy/ExecOrderS-20-04.htm> (requiring that grid-based energy usage of public buildings in California decrease twenty percent by 2015 and that all public building construction achieve LEED silver standard); S.B. 5509, 59th Leg., Reg. Sess. (Wash. 2005) (requiring all public buildings in Washington receiving state funding to achieve LEED silver standard); CONN. GEN. STAT. § 16a-38k (2007) (requiring that new public construction projects which cost over five-million dollars achieve LEED silver standard).

81. BROOKS RAINWATER, AM. INST. OF ARCHITECTS, LOCAL LEADERS IN SUSTAINABILITY 51-56 (2008), available at [http://www.aia.org/SiteObjects/files/LLinSustain\(full\)_final.pdf](http://www.aia.org/SiteObjects/files/LLinSustain(full)_final.pdf); see also U.S. CONFERENCE OF MAYORS, ENERGY AND ENVIRONMENT BEST PRACTICES GUIDE 4-22 (2007), available at http://www.usmayors.org/uscm/best_practices/EandEBP07.pdf (identifying twenty-six cities that have implemented some green-building initiatives). Less than half of the cities with municipal green-building requirements have addressed private actors. See RAINWATER, *supra* at 51-56.

82. See Leslie Mann, *Green from the Get-go*, CHI. TRIB., Mar. 11, 2007, § 16, at 1; Editorial, *The Greening of Beantown*, HARTFORD COURANT, Apr. 17, 2007. But see Jenna Ross, *Recent Actions*, STAR TRIB. (Minneapolis), Aug. 15, 2007, at W6 (describing how Eden Prairie, Minnesota, rejected building a community center with a green roof, even though that roof could have reduced energy costs over the long run).

83. See N.Y. CITY, N.Y., CHARTER § 224.1 (2007).

III. LOCAL BARRIERS TO GREEN BUILDING

In theory, local governments are well-positioned to embrace and encourage sustainable design. As Part I describes, localities have long held the power to exercise traditional land use functions. Moreover, the ostensible goals of zoning and design controls—a pleasing aesthetic, separation of noxious uses, the maintenance of property values, historic preservation—are compatible with and, indeed, often furthered by, the principles of sustainable design.⁸⁴

Despite such compatibility, however, traditional land use laws regularly thwart green building, whether intentionally or inadvertently. Only a few municipalities have begun to address climate change and the conservation of natural resources:⁸⁵ about seventy-five general purpose local governments (of 38,967 nationwide) incorporate sustainable-design principles into their ordinances.⁸⁶ Yet most have not turned their atten-

84. See Tristan Roberts, *Historic Preservation and Green Building: A Lasting Relationship*, ENVTL. BUILDING NEWS, Jan. 2007, available at <http://www.ncshpo.org/PDFs/2007AM/LEED/HPandGreenBuildingArticle.pdf> ("While green builders who value energy efficiency may not always see eye to eye with preservationists who treasure old windows and other existing features, both groups share a great deal of common ground and have a lot to teach each other."); *Historic Warehouse Building Also Environment Friendly*, INTERMOUNTAIN CONTRACTOR, Jan. 1, 2006, at 5 (describing a building in Ogden, Utah which was among the first to receive both LEED certification and the twenty percent federal historic tax credit); David Hogg, *There's an Old Mill Now Gone Green*, YORKSHIRE POST (Leeds), Sept. 14, 2005 (describing an old mill which includes solar panels, self-composting toilets, a river turbine, and other green-building technologies).

85. See Randall S. Abate, *Kyoto or Not, Here We Come: The Promise and Perils of the Piecemeal Approach to Climate Change Regulation in the United States*, 15 CORNELL J. L. & PUB. POL'Y 369, 384–85 (2006) (describing how 155 mayors signed a statement calling on the federal government to address climate change and 132 mayors representing 29 million citizens have embraced the Kyoto Protocol mandates for their cities); Cinnamon Carlarne, *Climate Change Policies an Ocean Apart: EU and US Climate Change Policies Compared*, 14 PENN ST. ENVTL. L. REV. 436, 445–46 (2006) ("Faced with weak federal efforts to address climate change, states such as California and New York and cities such as Portland and Philadelphia are choosing to follow in the footsteps of the European Union."); John R. Nolon, *In Praise of Parochialism: The Advent of Local Environmental Law*, in NEW GROUND: THE ADVENT OF LOCAL ENVIRONMENTAL LAW 3, 3 (John R. Nolon ed., 2003) ("[Municipalities enact] local comprehensive plans expressing environmental values, zoning districts created to protect watershed areas, environmental standards contained in subdivision and site plan regulations, and stand-alone environmental laws adopted to protect particular natural resources such as ridgelines, wetlands, floodplains, stream banks, existing vegetative cover, and forests.").

86. See U.S. CENSUS BUREAU, U.S. DEPT OF COMMERCE, GOVERNMENT ORGANIZATION: 2002 CENSUS OF GOVERNMENTS 5 (2002), available at <http://>

tion toward green building.⁸⁷ Instead, the vast majority of localities have responded to the nascent sustainable-design revolution by either explicitly prohibiting certain green technologies, typically on aesthetic grounds, or by ignoring the green-building movement in the text of ordinances and make piecemeal decisions on land use applications, creating ambiguity and inconsistency. In the absence of comprehensive reform, zoning and design controls will continue to prevent the green-building innovations which Part II argued make good economic and environmental sense.

A. BARRING GREEN

Communities typically impose zoning and design controls for the purpose of protecting and enhancing property values. Such laws depend, of course, on challenging judgments about what the market will value.⁸⁸ Presumably operating on the assumption that modern technologies are unattractive while adding no nonaesthetic value to the property, some communities explicitly use design controls to prevent their installation.

www.census.gov/prod/2003pubs/gc021x1.pdf (providing the 38,967 figure); Bureau of Nat'l Affairs, *supra* note 11, at 208 (noting that seventy-five local governments have committed to following LEED guidelines). These cities include Chicago, Dallas, Denver, Eugene, Portland, San Jose, Santa Monica, Scottsdale, and Seattle. See Christopher D. Montez & Darren Olsen, *The LEED Green Building Rating System and Related Legislation and Governmental Standards Concerning Sustainable Construction*, CONSTRUCTION LAW., Summer 2005, at 38, 41–42.

87. The National League of Cities, a nationwide nonprofit which focuses on municipal initiatives, has never formally opined on green building. The U.S. Conference of Mayors, another such group, has only recently begun to encourage its members to consider sustainable design by compiling a best practices manual. See U.S. CONFERENCE OF MAYORS, *supra* note 81. The Conference of Mayors, however, has attempted to address climate change with an agreement signed by 672 mayors. See Mayors Climate Prot. Ctr., List of Participating Mayors, <http://www.usmayors.org/climateprotection/list.asp> (last visited Oct. 16, 2008); Mayors Climate Prot. Ctr., U.S. Conference of Mayors Climate Protection Agreement, <http://www.usmayors.org/climateprotection/agreement.htm> (last visited Oct. 16, 2008). The mayors' efforts have been criticized for failing to meet their goals. See JOHN BAILEY, LESSONS FROM THE PIONEERS: TACKLING GLOBAL WARMING AT THE LOCAL LEVEL 3 (2007), available at <http://www.newrules.org/de/pioneers.pdf> ("In all [ten study] cities [chosen from among those cities who signed the U.S. Mayors Climate Protection Agreement], community-wide emissions have risen since 1990, sometimes dramatically . . .").

88. See Beverly A. Rowlett, *Aesthetic Regulation Under the Police Power: The New General Welfare and the Presumption of Constitutionality*, 34 VAND. L. REV. 603, 622–23 (1981).

Perhaps the most common sustainable technology barred by design control laws is the photovoltaic panel, which can be placed on or around structures to capture and convert solar energy.⁸⁹ The first solar panels, which came on to the market in the 1970s, sat on freestanding metal frames and were extremely bulky and, to many, unattractive.⁹⁰ Today, solar panels have a much thinner profile and can be tucked away unobtrusively. Despite such design refinements, solar panels seem to have retained their reputation for being undesirable aesthetically. Indeed, aesthetic review boards and historic preservation boards, which typically govern structures visible from a public way, regularly reject their installation.⁹¹ Unfortunately, to maximize sun exposure, panels must often be sited in locations at least partially visible from a public way. The solar panel example highlights the tension between the aesthetic concerns of design control boards and the energy-efficiency concerns of environmental advocates. Rather than celebrating and fully utilizing their energy-efficient technologies, homeowners are forced to hide or dismantle them.⁹²

As is the case with solar panels, the use of energy-efficient windows can come into conflict with design controls—particularly historic preservation ordinances. This conflict arises when energy-efficient windows fail to replicate historic windows with respect to materials, casing, sash width, muntin profile, or color. *The Wall Street Journal* recently profiled a Concord, Massachusetts, homeowner who wanted to use energy-efficient windows, but was barred from doing so by the local preservation ordinance.⁹³ In an example from the Pacific Northwest, a Portland developer considered replacing the

89. See generally PETER GEVORKIAN, *SOLAR POWER IN BUILDING DESIGN* (2007) (describing the history, technology, and design of photovoltaic panels).

90. See Isabelle Groc, *When the Joneses Go Solar*, *HIGH COUNTRY NEWS*, July 23, 2007, at 6 (noting that solar panels installed in the 1970s often are not maintained and become dilapidated and unattractive).

91. See, e.g., David Collins, *Not So Hot*, *SANTA FE NEW MEXICAN*, Jan. 8, 2006, at 11 (describing the reluctance of the Santa Fe Historic Design Review Board to allow solar panels); Tom Sharpe, *Solar Collectors to be Removed From House in Historic District*, *SANTA FE NEW MEXICAN*, July 23, 2005 (chronicling the experience of one Santa Fe couple forced to remove solar panels worth \$40,000 from their home in a historic district).

92. See, e.g., Lorraine Mirabella, *Marylanders Are Finding Energy Elsewhere*, *CHI. TRIB.*, Jan. 18, 2004, § 16, at 5P (describing how a Takoma Park, Maryland homeowner hid thirty-six solar panels on the back of his roof).

93. Sara Schaefer Muñoz, *An Inconvenient Turbine: Conservation vs. Preservation*, *WALL ST. J.*, July 12, 2007, at B5.

wooden windows of a landmarked downtown building with more energy-efficient windows that would have significantly lowered energy usage in the building. After protests from the preservation board, the developer caulked the windows instead—a far less desirable outcome from a standpoint of energy efficiency and sustainability.⁹⁴ Makers of energy-efficient windows have begun to develop products specifically for historic properties,⁹⁵ but few such products are yet on the market. Without off-the-shelf options for all varieties, shapes, sizes, and styles of historic windows, the cost of custom-making such windows is often prohibitive.

Landscaping is another area in which principles of sustainability come into dramatic conflict with local land use regulation. The American lawn aesthetic—an aesthetic upheld in most design review ordinances that address lawns—prefers perennially green, high-maintenance lawns, which require a great deal of water, pesticides, and weed killers. Indeed, the United States' forty million acres of lawns demand 238 gallons of water per person, per day during the growing season, and lawnmowers used to care for lawns burn 800 million gallons of gas.⁹⁶ To mitigate the negative effects of high-maintenance lawns, LEED awards points for water-efficient landscaping that reduces potable water usage by fifty to one hundred percent.⁹⁷ Such water-efficient landscaping might include native plants such as prairie grass or cacti, rocks and other hardscape, or xeriscape.⁹⁸ Design controls, and particularly aesthetic review laws, however, have not caught up to the LEED mentality.

Many green technologies are not nearly as unattractive as design control boards assume, and the manufacturers who pro-

94. Rachel Hatzipanagos, *Save History or Save the Planet: Environmentalists, Preservationists Seek Common Ground on Renovation Plans*, NEW ORLEANS TIMES-PICAYUNE, Aug. 5, 2007, at 46 (noting that this decision resulted in fewer LEED points, since LEED emphasizes having new products).

95. See Muñoz, *supra* note 93, at B6.

96. Thomas Hayden, *Could the Grass Be Greener?*, U.S. NEWS & WORLD REPORT, May 16, 2005 (quoting the study's lead author, who now works at NASA).

97. See U.S. GREEN BLDG. COUNCIL, *supra* note 46, at 16–17.

98. "Xeriscape" is a style of landscape design that reduces irrigation and maintenance needs. See FLA. STAT. § 373.185(b) (2007) (describing "xeriscape" as "quality landscapes that conserve water and protect the environment and are adaptable to local conditions and which are drought tolerant" and noting that the principles of xeriscape include "planning and design, appropriate choice of plants, soil analysis, . . . efficient irrigation, practical use of turf, appropriate use of mulches, and proper maintenance").

duce such technologies are working on ways to better integrate them into conventional building design.⁹⁹ Moreover, as green building becomes more popular and as its long-term benefits become clear, it may enhance property values as much as design controls do. It is critical, therefore, that communities maintain sufficient flexibility in their design controls so that they may adjust both to the rapidly evolving range of green technologies and the potentially growing market value of such features.

B. IGNORING GREEN

While some localities explicitly ban the installation or use of green technologies perceived to be inconsistent with the community's aesthetic standards, many more localities fail to include any explicit reference to green technologies in their land use regulations. Although undoubtedly less problematic than an outright ban, failure to contemplate green technologies can itself hinder their utilization.

Zoning ordinances often fail to address free-standing, bulky, or noisy green-building technologies. Technologies such as windmills, solar panels, fuel cells, water collectors, and turbines are mentioned in only a handful of the thousands of zoning ordinances in force across the country.¹⁰⁰ Where relevant language does not appear in the ordinance, applicants cannot know in advance whether the installation or modification of green technologies is subject to zoning board review. Applicants may review the ordinance, and, seeing no relevant language, proceed with construction, only to be told later that they must dismantle the structure or pay a fine.¹⁰¹

Consider the specific example of the windmill, one of the purest renewable energy systems, which uses rotating blades to harness wind energy.¹⁰² The first question for a potential zon-

99. See, e.g., Muñoz, *supra* note 93, at B6 (providing two examples of companies designing new energy-efficient products that fit in with existing surroundings).

100. See *supra* text accompanying note 86 (explaining that relatively few localities nationwide address green-building issues).

101. See Sanya Carleyolsen, *Tangled in the Wires: An Assessment of the Existing U.S. Renewable Energy Legal Framework*, 46 NAT. RESOURCES J. 759, 787 (2006) (suggesting that a builder often cannot find information about green technologies, such as solar panels, and consequently "will not know whether . . . he or she can simply confirm that the panels conform to height and setback regulations").

102. The term "wind turbine" may be substituted for the word "windmill"

ing applicant is whether a windmill falls under the purview of the relevant zoning ordinance, which usually depends on the definition of "structure" provided by the ordinance. If the windmill falls under the ordinance's purview, the next question for the applicant is whether the windmill is subject to the ordinance's height, bulk, setback, and floor-to-area ratio rules. If so, the applicant must determine how each rule should be interpreted: Should the footprint of the windmill be included in the calculation of built space allowed by the applicable floor to area ratio? Should the height of the windmill be measured from the base to the top of the blade wingspan, to the center of the blade, or to the top of the vertical shaft that converts the energy?¹⁰³ If the windmill does exceed the height limit, the zoning board would have to determine whether a variance should be granted.¹⁰⁴ The results for applicants vary,¹⁰⁵ and it should come as no surprise that builders of sustainable projects complain that land use laws are subjectively interpreted and arbitrarily enforced, and, therefore, that they discourage green building.¹⁰⁶

A related problem which occurs in the absence of relevant language is that zoning boards have no standards by which to judge applicants for zoning relief. Instead, the boards engage in ad hoc inquiries leading to uncertainty among applicants seeking to employ innovative techniques and technologies. For example, former Vice President Al Gore petitioned to install solar panels on his roof in Belle Meade, Tennessee, but the local zoning board denied his petition.¹⁰⁷ At the time, the city's zoning

in this Article.

103. See Carleyolsen, *supra* note 101, at 786.

104. See, e.g., Kay Longcope, *Strong Gusts of Opposition Halt Many Windmill Plans Zoning Laws, Neighbors' Objections Leave Many Projects Unbuilt*, BOSTON GLOBE, June 28, 1981 (describing how many Massachusetts local governments ban structures more than thirty-five feet tall, making it difficult for landowners to construct windmills).

105. Mechanisms such as variances and other exceptions to zoning ordinances cause inconsistent treatment among applicants. See Carleyolsen, *supra* note 101, at 782 (describing zoning ordinances as "flexibly applied").

106. See, e.g., Kennedy Smith, *Once Stymied, Now Costlier, Mississippi Avenue Lofts in Portland Move Forward*, DAILY J. COM. (Portland, Or.), July 20, 2007 (quoting Portland, Oregon developers who say the progress of green building is constrained by subjective design controls); *A Rebuilding Block: Portion of East Third Street Undergoes a Renaissance*, LEXINGTON HERALD-LEADER (Lexington, Ky.), Sept. 5, 2006, at C1 (describing how a property owner called the historic review board "a hassle to deal with").

107. Agenda, Board of Zoning Appeals Meeting, City of Belle Meade (Apr. 17, 2007), <http://www.citybellemeade.org/cityhall/agnd.BZ04172007.pdf> (indi-

ordinance contained a provision allowing the placement of power-generating equipment at the ground level, but not on roofs. Reportedly, the city has recently changed its zoning ordinance to allow solar panels on roofs as long as they cannot be seen from a public right of way¹⁰⁸—though one might wonder whether the same result would have followed from the efforts of a less notable petitioner. As Carol Rose has argued, this type of piecemeal decision making tends to ignore extralocal effects, exclude low-income outsiders, shift environmental problems to neighbors, and thwart orderly and predictable development.¹⁰⁹

C. ISOLATED EXPERIMENTS IN LOCAL REFORM

Only a handful of localities currently promote green building through their land use laws. They do so by issuing mandates, writing optional codes, comprehensively re-evaluating certain existing laws, and granting green-building projects certain procedural benefits. While localities are currently testing each of these strategies, and might find some to be successful, adoption in most—or even a substantial minority of—localities across the country seems practically infeasible.

The most aggressive tool for promoting green building is to actually mandate standards in land use laws. The handful of passed mandates set the LEED point system as their goal.¹¹⁰ The largest city to embrace green-building mandates is Boston: in the summer of 2007, the city amended its zoning ordinance to require that all private construction over fifty thousand square feet meet minimum LEED criteria.¹¹¹ Through its Green Points Program, Boulder, Colorado, requires some combination of recycled materials (such as fiber concrete, reclaimed lumber, or recycled roofing materials), green insulation products, energy-efficient windows, radiant floor heating, or other

cating the denial of Gore's application).

108. See Shari A. Shapiro, *Local Regulations Still Catching Up to Meet Green-Building Requirements*, CENT. PENN BUS. J., July 13, 2007, at 16.

109. See Rose, *supra* note 5, at 840–42.

110. See *supra* note 80 (noting several states that incorporate the LEED rating system into statewide mandates).

111. BOSTON, MASS., ZONING CODE arts. 37-3, 37-4, 80B-6(2)(vii) (2007) (stating that any proposed project that is subject to the city's "Large Project Review" must demonstrate that it would meet the appropriate level of LEED certification). In calculating LEED compliance, the city may award a bonus point if the project involves certain historic structures. *Id.* art. 37 app. A.

sustainable products in private residential addition and remodeling projects larger than five hundred square feet.¹¹²

Small towns have also experimented with mandates. For example, Babylon, New York, requires new construction of multiple residences, and commercial, office, and residential buildings greater than four thousand square feet to meet LEED criteria; Babylon officials estimate that this change will reduce greenhouse gas emissions by 1.37 million tons.¹¹³ Meanwhile, Greenburgh, New York, amended its building code to require greater energy efficiency, mandating that homes meet state ratings goals.¹¹⁴

Despite the few examples listed above, and despite the undoubted effectiveness of mandates as a tool for minimizing the negative externalities of conventional construction, mandates have never been popular. Developers in particular—whether or not they support green building in principle—are likely to be the strongest opponents of mandates, because they have the most to lose. Of course, developers might worry about the cost of green building, despite recent studies showing that the cost is lower than commonly perceived.¹¹⁵ Just as important, however, developers may be hesitant to lose a bargaining chip: developers thrive on the deals they make with localities, and are, more and more, agreeing to adhere to sustainable-design principles in exchange for some benefit from the city.¹¹⁶ Developers willing to build green would lose such leverage if everyone were required to do so.

Optional codes are an alternative to mandates and encounter less constituent opposition because individual landowners might choose to use either the traditional or the optional code. Instead, the major opposition to optional codes comes from overworked local land use officials who must draft, and regu-

112. See City of Boulder Residential Bldg. Guide, Green Points Application 4–9, http://www.bouldercolorado.gov/files/PDS/codes/1001_web.pdf (last visited Oct. 16, 2008).

113. Anthony S. Guardino, *Green Revolution: New Local Regulations Address Global Warming*, N.Y.L.J., July 25, 2007, at 8.

114. See *id.*

115. See *supra* text accompanying notes 66–72.

116. As one of hundreds of examples throughout the country, the author has worked on documents for a major project in New Haven, Connecticut, named 360 State Street, in which the agreement between the developer and the City of New Haven required that the developer achieve LEED certification for the building.

late under, a new legal regime.¹¹⁷ Despite such resistance, a handful of municipalities have passed optional codes. Lake County, Illinois, which encompasses affluent suburbs north of Chicago, offers an optional code, separate from its conventional building code, only to builders constructing energy-efficient buildings.¹¹⁸ Tiny New Pattonsburg, Missouri, adopted a code that addresses solar and wind energy, encourages earth-sheltered housing, and provides rules on choosing building sites.¹¹⁹ Chicago plans to develop an alternative building code applicable to green buildings, which would address barriers in the existing code and allow the use of currently prohibited green technologies.¹²⁰ While these efforts are laudable, and provide important options for green builders, it would be far preferable to integrate sustainable-design principles into conventional land use laws that apply to all builders.

Comprehensive evaluation of traditional land use laws, however, is rare.¹²¹ Localities revise zoning and design control laws sporadically, and are not typically required to do so by the state enabling acts from which their powers are derived.¹²²

117. Cf. Sara C. Galvan, *Rehabilitating Rehab Through State Building Codes*, 115 YALE L.J. 1744, 1771–72 (2006) (describing how building code officials, whose departments are understaffed and underfunded, are among those most resistant to reform in building code texts). The understaffing of city planning departments has been documented only on a city-by-city basis. See, e.g., CITY OF L.A., OFFICE OF THE CONTROLLER, PERFORMANCE AUDIT OF THE DEPARTMENT OF CITY PLANNING'S CASE PROCESSING FUNCTION 24 (2005), available at http://www.lacity.org/ctr/audits/ctraudits18033210_10312005.pdf (identifying an eighteen percent vacancy rate in staff positions); S.F. CHAPTER OF THE AM. INST. OF ARCHITECTS & S.F. PLANNING & URBAN RESEARCH ASS'N, PLANNING THE CITY'S FUTURE 8 (2004), http://www.spur.org/documents/pdf/040301_report_01.pdf (calling the planning department "severely understaffed").

118. LAKE COUNTY, ILL., BUILDING CODE § 326 (2007) (requiring builders who elect to use the alternative code meet all of the requirements of the code).

119. Smart Communities Network, New Pattonsburg, Missouri Solar Codes & Ordinances, <http://www.smartcommunities.ncat.org/codes/solar.shtml> (last visited Oct. 16, 2008).

120. See CITY OF CHICAGO, BUILDING HEALTHY, SMART, AND GREEN 6 (2005), available at http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/BHSGAgenda_1.pdf ("The City will review the Chicago Building Code to identify barriers to building green, and will work to create a Green Building Code.").

121. But see Ryan Morgan, *Economy vs. History in Codes City Rethinks Environmental, Historic Preservation Goals*, BOULDER DAILY CAMERA, Feb. 19, 2006, at A1 (describing how the city council of Boulder, Colorado, ordered its staff to investigate instances in which green building and historic preservation ordinances come into conflict).

122. The Standard Zoning Enabling Act, adopted by many states, empow-

Administrators, insiders, or policy experts typically write local laws all at once, and revisions are made to the laws either as written (a rezoning or a map amendment) or as applied (an exemption from review granted by a historic district board). Localities from Los Angeles to Asheville, North Carolina have amended zoning and design control guidelines to address one kind of technology or another,¹²³ but none have addressed all of the questions raised in this Part about windmills, solar panels, fuel cells, water collectors, and turbines. Land use laws must be significantly overhauled to fully define and incorporate sustainable design.

In addition to substantive changes to land use laws, localities may consider procedural reforms that favor green building. Such reforms have the least impact of all the reforms suggested, but they also meet with the least opposition. Several localities, for example, have waived building permit fees for buildings that incorporate at least one type of sustainable technology.¹²⁴ Instead of fee waivers, Scottsdale, Arizona, provides participants in its Green-Building Program with public recognition, green-building inspections, and development process as-

ers localities to create ordinances to regulate and restrict land use, but does not mandate that such localities revise their ordinances. ADVISORY COMM. ON ZONING, U.S. DEPT OF COMMERCE, A STANDARD STATE ZONING ENABLING ACT (1926). Similarly, under the Standard City Planning Enabling Act, localities are permitted, in their discretion, to "make, adopt, amend, add to, or carry out a municipal plan . . . and create by ordinance a planning commission" ADVISORY COMM. ON CITY PLANNING & ZONING, U.S. DEPT OF COMMERCE, A STANDARD CITY PLANNING ENABLING ACT 7 (1928).

123. See, e.g., L.A., CAL., MUNICIPAL CODE ch. 1, art. 2 § 12.21.1(B)(3)(a), available at http://www.amlegal.com/nxt/gateway.dll?f=templates&fn=default.htm&vid=amlegal:lamc_ca (exempting solar panels from its height rules, as long as the property owner sets the structure back from the roof perimeter the same number of feet as the panel structure exceeds the relevant height limit); Joel Burgess, *City Area Set to Get Historic Status*, ASHEVILLE CITIZEN-TIMES, Dec. 28, 2006, at 1B (explaining how an Asheville official suggested guidelines addressing the energy-efficient insulation of historic single-pane windows and created more relaxed rules for solar panels in a newly created historic district).

124. See, e.g., Chelsea Phua, *Solar Fee Waiver Mulled, SMUD Proposes Program for Efficient Energy Use and Green Technology*, SACRAMENTO BEE, Feb. 5, 2007, at B1 (describing how the Sacramento Municipal Utility District proposed to waive building permit fees for projects with solar panels, foregoing only five to ten thousand dollars in revenue, and how Elk Grove, California, adopted a similar ordinance); Stephen Wall, *Green Campaign Wins Green Light*, SAN BERNARDINO COUNTY SUN, Aug. 29, 2007 (describing how the San Bernardino County Board of Supervisors waived building permit fees for owners of existing buildings who "install solar panels, wind turbines, tankless water heaters, and energy-efficient air conditioning systems").

sistance for green projects.¹²⁵ Where localities have growth management plans that limit the number of building permits they grant, some building permits can be set aside for energy-efficient (or green) buildings.¹²⁶ Localities may also prioritize the review of green-building projects if local officials have multiple projects, both green and conventional, to review.¹²⁷

Despite examples of successful local reform, very few localities have taken steps to amend existing laws or to create new laws which address green building.¹²⁸ Institutional inertia serves as a key obstacle: simply put, local government officials resist change.¹²⁹ Revisions to existing laws, such as incorporating green-building technologies or performance standards instead of prescriptive rules, necessarily require significant effort from local officials.¹³⁰ Underfunded and understaffed, local land use departments may not have the manpower or resources to address green-building innovations.¹³¹ As a result, enacted green-building initiatives have developed “with little or no role” from local officials.¹³²

Moreover, and not insignificantly, interest groups may exercise their influence to prevent sustainable-design principles from being written into local laws. Robert C. Ellickson and

125. See CITY OF SCOTTSDALE, ARIZ., GREEN BUILDING PROGRAM, <http://www.scottsdaleaz.gov/Assets/documents/greenbuilding/ProgramOverview.pdf> (last visited Oct. 16, 2008).

126. See, e.g., Matt Carter, *Pleasanton Energy Plan Passes Unanimously*, TRI-VALLEY HERALD (Pleasanton, Cal.), Dec. 5, 2002 (describing a Pleasanton, California plan to set aside fifty building permits for residences that produce as much electricity as they consume, a large number considering only 139 homes were slated to be built in the next two years under the town's growth management program).

127. See, e.g., Wall, *supra* note 124 (describing how this strategy will work in San Bernardino County, California).

128. See Nancy J. King & Brian J. King, *Creating Incentives for Sustainable Buildings: A Comparative Law Approach Featuring the United States and the European Union*, 23 VA. ENVTL. L.J. 397, 415 (2005).

129. See Galvan, *supra* note 117, at 1772–73 (describing a similar concern with code officials' resistance to rehabilitation building codes, another innovation in coding).

130. See *id.* at 1771.

131. *Survey Reveals Need to Bolster Building Departments*, RISK MGMT., Apr. 1996, at 14 (reporting the results of a survey of 806 code administrators which indicated that “47 percent feel they are not adequately staffed to complete all necessary inspections of construction work, and about the same number (46 percent) say they do not have the staff to handle their responsibilities for reviewing plans”).

132. Peter Yost, *Green Building Programs—An Overview*, BUILDING STANDARDS, Mar.–Apr. 2002, at 12.

Vicki L. Been argue there are only three players in land use disputes: landowners, neighbors, and general-purpose local governments.¹³³ In drafting land use regulations, however, the interest group emerges as an important fourth player. In the green-building context, interest groups favoring reform include environmentalists, manufacturers of green-building technology, and developers who favor modern green design. Opponents include unions, manufacturers of conventional building materials, and developers who perceive that green building is too costly. Interest group effects, when combined with institutional inertia and lack of resources, help slow progress at the local level. In light of these political realities, modifications to existing laws to overcome barriers to green building may be difficult.

IV. EXTRALOCAL LAND USE REGIMES

The inability of localities to create responsible land use regimes has long been criticized. Twenty-five years ago, Carol Rose analyzed the “increasing doubt that local governments make land development decisions fairly and rationally—that is, with a reasonable distribution of burdens among individuals, and with the care and deliberation commensurate with the long-term implications of land development.”¹³⁴ Today, and especially in the green-building context, the critique still rings true: local governments have failed to consider ways to mitigate the long-term negative impact of conventional construction.¹³⁵ Yet as the preceding discussion demonstrates, attempts to change existing laws on a locality-by-locality basis face significant and potentially insurmountable challenges. Nonetheless, as discussed above, traditional land use regulations require dramatic reform in order to accommodate and encourage green building. This Part analyzes the possibility of two possible extralocal approaches to reform, concluding that neither federal nor regional approaches can, or should, solve the problems posed by local legal barriers to green building.

133. ELLICKSON & BEEN, *supra* note 23, at 73.

134. Rose, *supra* note 5, at 839.

135. Some have called traditional land use regulation by localities the “weakest link in modern environmental law protection.” Tarlock, *supra* note 14, at 652.

A. THE IMPROBABLE FEDERAL APPROACH

A national approach to land use regulation has been considered from time to time, but—perhaps not surprisingly—has never gained much traction. A review of the legal and historical backdrop for various national land use proposals may illuminate why greater federal involvement in traditional land use regulation is both improbable and undesirable.

As a preliminary matter, the Constitution does not prevent the federal government from engaging in traditional land use regulation functions. In theory, Congress might justify a takeover of such functions from localities under the federal government's Commerce Clause powers.¹³⁶ Land use laws have interstate spillover effects, and in the aggregate, may affect interstate commerce. As one scholar articulated the issue, "[a]lthough recent United States Supreme Court decisions have chipped away at any automatic presumption of sweeping national authority, it is unlikely that national land-use planning as such would fall on the unconstitutional side of the line."¹³⁷ Any conflict between the federal government's exercise of its powers and the states' long-established power to regulate land use under the police power¹³⁸ would be resolved in favor of the federal government under the Supremacy Clause.¹³⁹

In spite of the likelihood that federal involvement in traditional land use regulation is constitutional, attempts at increasing federal involvement have not fared well. The first serious attempt at nationally coordinated land planning (not regulation) took place during the New Deal, when the development of agricultural land was managed by local planning committees coordinated by a federal agency.¹⁴⁰ These agricultural programs did not infringe on localities' traditional regulatory

136. U.S. CONST. art. I, § 8; see Jerold S. Kayden, *National Land-Use Planning in America: Something Whose Time Has Never Come*, 3 WASH. U. J.L. & POL'Y 445, 451–52 (2000).

137. Kayden, *supra* note 136, at 451.

138. U.S. CONST. amend. X ("The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people."); see also *Vill. of Euclid v. Ambler Realty Co.*, 272 U.S. 365, 396–97 (1926) (upholding zoning as a constitutional exercise of the police power).

139. U.S. CONST. art. VI, cl. 2 ("This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land . . .").

140. Todd A. Wildermuth, *National Land Use Planning in America, Briefly*, 26 J. LAND RESOURCES & ENVTL. L. 73, 75 (2005).

powers, but are nonetheless significant in that they coordinated with localities to meet centralized supply and land use goals.¹⁴¹ They were abandoned during World War II for a number of reasons, primarily because agricultural demand and production had soared, and management of agricultural land was no longer a priority.¹⁴² The second—and, many scholars agree, last—push for federal control over land use was Senator Henry Jackson's proposal of a National Land Use Planning Act in the early 1970s.¹⁴³ Jackson envisioned a scheme in which the national government gave incentives to states to adopt strategic plans, provided technical assistance, and directed resources toward growth and conservation.¹⁴⁴ Despite being passed by the Senate, Jackson's bill met with opposition from states, localities, and private organizations, and was never passed by the House of Representatives.¹⁴⁵

Since the 1970s, the call for national land use regulation has grown weaker.¹⁴⁶ No serious scholar supports an expanded role for the national government in traditional land use regulation—which is unsurprising given the arguments identified in Part I in support of local control. Congress, ruling from Washington, D.C., has little understanding of the myriad site-specific issues considered by tens of thousands of localities.¹⁴⁷ National legislators may be wary of interfering with such an inherently local issue. Jerold S. Kayden suggests that the United States' large size, its private property tradition, and citizen preference

141. *See id.*

142. *See id.* at 75–76 (adding three other reasons for the program's demise: opposition from the American Farm Bureau Federation, the departure of a powerful advocate from the Secretariat of the U.S. Department of Agriculture, and the decision to devolve control to thousands of counties nationwide).

143. *See, e.g.,* Jayne E. Daly, *A Glimpse of the Past—A Vision for the Future: Senator Henry M. Jackson and National Land-Use Legislation*, 28 URB. LAW. 7 (1996) (describing several different attempts by Senator Jackson to pass national land use legislation); Tarlock, *supra* note 14, at 656; John R. Nolon, *National Land Use Planning: Revisiting Senator Jackson's 1970 Policy Act*, LAND USE L. & ZONING DIG., May 1996, at 3, 4.

144. Nolon, *supra* note 143.

145. *See* Daly, *supra* note 143, at 34–35.

146. Wildermuth, *supra* note 140, at 79 ("Many changes since the 1970s have, in fact, weakened the call for national land use planning. States, for example, have developed their own land use planning. Localities, too, have often taken up the charge to defend their home places in collaborative, democratic ways . . .").

147. *See* U.S. CENSUS BUREAU, *supra* note 86, at v. (showing that 38,967 general-purpose governments and 35,052 special districts exist in the United States).

for local control cut against national involvement.¹⁴⁸ Eric T. Freyfogle states the case more directly: "land use regulation at the state level is bad enough. Direct federal regulation, for many citizens, is simply taking things too far."¹⁴⁹

Some scholars, however, identify a few issues which implicate land use—issues such as water pollution, transportation, or agricultural management—for which it might make sense for the federal government to play a role.¹⁵⁰ In addition, as far back as 1995, the federal government developed a set of national construction goals which specifically encouraged sustainability.¹⁵¹ At least seventeen federal-agency programs and seven executive orders support sustainable design.¹⁵² Nonetheless, none of these measures attempted to radically transform local control of land use regulation.¹⁵³ And none of them should; federalizing zoning or design controls would so undermine local autonomy that the entire system of land use regulation would be upended.

148. Kayden, *supra* note 136, at 451–53.

149. Freyfogle, *supra* note 34, at 580.

150. See, e.g., Kayden, *supra* note 136, at 446 ("[These areas include] environmental regulation; management of nationally owned land; transportation policy and finance; housing and economic development subsidies; and [takings]."); Jess M. Krannich, *A Modern Disaster: Agricultural Land, Urban Growth, and the Need for a Federally Organized Comprehensive Land Use Planning Model*, 16 CORNELL J.L. & PUB. POL'Y 57, 58–59 (2006) (citing the shortage of productive agricultural land, and states' and localities' inability to plan for better use of such land, as the reason for implementing nationally organized planning); Wildermuth, *supra* note 140, at 80–81 (identifying three areas where national land use planning might be acceptable, including large or migrating species habitat, pollution, and resource management).

151. See SUBCOMM. ON CONSTR. & BLDG., NAT'L SCI. & TECH. COUNCIL, CONSTRUCTION AND BUILDING: FEDERAL RESEARCH AND DEVELOPMENT IN SUPPORT OF THE U.S. CONSTRUCTION INDUSTRY 7–9 (1995), available at <http://www.fire.nist.gov/bfrlpubs/build95/PDF/b95015.pdf> (listing federal goals for the construction industry which included fifty percent less waste and pollution and fifty percent greater energy efficiency over eight years).

152. OFFICE OF THE FED. ENVTL. EXECUTIVE, *supra* note 9, at xx–xxi (listing agency programs); Office of the Fed. Env'tl. Executive, Executive Orders, <http://www.ofee.gov/eo/eo.asp> (last visited Oct. 16, 2008) (listing executive orders); see also SUBCOMM. ON CONSTR. & BLDG., *supra* note 151, at 18–31 (describing the role several federal agencies played in advancing technology in the construction industry).

153. In addition, some commentators are highly critical of the federal government's role in encouraging green building. See, e.g., John C. Dernbach & Scott Bernstein, *Pursuing Sustainable Communities: Looking Back, Looking Forward*, 35 URB. LAW. 495, 505 (2003) ("The [country] has no national strategy for sustainable development, much less a specific strategy for fostering or encouraging sustainable communities.").

B. THE IMPRACTICAL REGIONAL APPROACH

The prospect of the reform of the land use system has always intrigued and inspired proponents of regional forms of governance. Land use regulation is, after all, one of the more obvious governmental functions which might benefit from a regional approach: as Part II clarified, land use decisions have significant extralocal (and some would say primarily regional) impact. Accordingly, especially over the last twenty years, numerous legal scholars have advanced what can be called regionalist proposals.¹⁵⁴ Professor Gerald Frug discards the notion that empowering regional governments necessarily enfeebles localities: "There is no reason simply to assume that addressing regional concerns always erodes local decision-making authority."¹⁵⁵ He combats this assumption by asserting that regional governments can actually work to support local autonomy because the state's devolution of power to regional governments could open the door for regional-local alliances that expand localities' powers.¹⁵⁶

Despite scholarly interest in regional approaches to land use regulation, there remain serious practical and political barriers to implementing such approaches. In a practical sense, the realization of regionalism requires new institutions which would be expensive to create and difficult to integrate with the existing land use regime. According to proponents of regionalism, such institutions might be regional legislatures or administrative authorities.¹⁵⁷ To function, they would require state funding (or the ability to collect revenues), physical offices, adequate personnel, and defined powers which supersede local rules.¹⁵⁸ The last functional requirement—power to super-

154. See Laurie Reynolds, *Intergovernmental Cooperation, Metropolitan Equity, and the New Regionalism*, 78 WASH. L. REV. 93, 109–11 (2003) (describing the New Regionalists' approach).

155. Frug, *supra* note 41, at 1790.

156. See David J. Barron & Gerald E. Frug, *Defensive Localism: A View of the Field From the Field*, 21 J.L. & POL. 261, 286–91 (2005) (suggesting regionalism and autonomy are not incompatible).

157. See, e.g., GERALD E. FRUG, *CITY MAKING: BUILDING COMMUNITIES WITHOUT BUILDING WALLS* 85–88 (1999); Richard Briffault, *Home Rule for the Twenty-First Century*, 36 URB. LAW. 253, 271–72 (2004) (suggesting that states need to create more land use regulations and institutions to govern local land use actions, and asserting that such institutions would "ideally . . . operate at the regional and not the state level"); Frug, *supra* note 41, at 1790–91.

158. Richard Briffault, *The Local Government Boundary Problem in Metropolitan Areas*, 48 STAN. L. REV. 1115, 1166 (1996) (suggesting that regional governments' powers could include the powers to collect and distribute reve-

sede—is critical: any regional institution which functions as a land use decision-making authority must have the ability to override local interests.¹⁵⁹ Without such ability, a regional land use body would be useless. With it, however, the longtime power of localities to regulate land use would be usurped by new institutions previously not in existence or not a player in the state-local land use regime. Granting the power to supersede to regional land use bodies would have many practical consequences. First, existing local government units (such as zoning and design review boards) would have to be reorganized or consolidated, and local administrative staff would have to be retrained.¹⁶⁰ In addition, funding of local land use programs would be reduced or eliminated.¹⁶¹ Perhaps most significantly, state lawmakers would have to resolve how to apply and enforce previously existing land use regulations. From a purely practical standpoint, the creation of a regional institution empowered to significantly reform land use regulation would require dramatic changes to the existing land use regime.¹⁶²

Moreover, from a political perspective, the likelihood that localities will politely cede land use decision-making authority to new regional institutions seems remote. Localities (and the lobbyists who represent them) would no doubt resist attempts to regionalize land use powers by practicing “defensive localism” to protect their own interests.¹⁶³ Such defensive localism attempts to preserve autonomy at not just the local political level, but also the level of the individual. Indeed, individual members of the public would likely join with local governments to reject any proposal to expand governmental bureaucracy to new regional bodies.¹⁶⁴ Homevoters might be particularly resis-

nues, provide regionwide physical infrastructure, and determine questions of regional significance).

159. If adequately empowering regional governments fails to overcome the “ideology of localism,” perhaps incentives to cooperate would assist. *See* Saxer, *supra* note 8, at 682.

160. Briffault, *supra* note 158, at 1166.

161. *See id.*

162. While some commentators have suggested that localities open voting to every eligible voter in the region as an alternative to creating separate governmental institutions, most reject this notion. *See, e.g., id.* at 1158–62 (opposing cross border voting).

163. *See* Barron & Frug, *supra* note 156, at 261–62 (observing the phenomenon of “defensive localism” and arguing that proponents of regionalism should offer regional forms of government empowerment and engage localities, instead of enfeebling them, as the current model does).

164. *Id.* at 270.

tant: Fischel asserts that homevoters disfavor regional governments because they perceive regionalism to circumvent their parochial concerns about property values.¹⁶⁵ For support of the assertion that regional governments are unpopular, one simply has to look around. The paucity of regional governments in the United States is striking.¹⁶⁶

The truth is—no matter what scholars say—localities feel that their autonomy is threatened by regional governments, and individual landowners are just as wary. The practical barriers to regionalism render a regional approach unviable.

V. THE QUIET REVOLUTION REVIVED THROUGH STATE CONTROL

In light of the impracticability of national or regional land use schemes, and in light of the failures of localities to enact reforms to address green building, states should reclaim their abilities to regulate land use under the police power to move reforms forward. This Part challenges the long-accepted view that states have no role to play in traditional land use regulation and explains why sustainable design might inspire a renewal of the long-dormant quiet revolution. As Part I revealed, the major barrier to the revival of the quiet revolution is the potential conflict with local autonomy. Yet as this Part demonstrates, the current land use regime allows the states to make changes without compromising local autonomy.

A. WHY STATES

The argument that states should become more involved in land use is controversial but not new: *The Quiet Revolution* sets forth an argument for state involvement which consists of five major components. First, it recognizes that localities have long been the primary level of government involved in land use reg-

165. FISCHEL, *supra* note 38, at 229. *But see* Barron & Frug, *supra* note 156, at 268 (“As Fischel’s model makes plain, however, homevoters want to boost their housing value, not govern themselves. It is not clear, therefore, that the homevoter hypothesis entails an attachment to local control. If regionalism or state-sponsored development policies better enhanced market values, homeowners might prefer them.”).

166. E-mail from Shannon Menard, Policy Manager, Nat’l Ass’n of Reg’l Councils, to Sara C. Bronin, Associate Professor of Law, Univ. of Conn. Sch. of Law (July 15, 2008, 09:15 EST) (on file with author) (indicating that, according to the National Association of Regional Councils, there are only five hundred and twenty regional councils, defined as “local government-based planning and development organizations”).

ulation.¹⁶⁷ Second, it identifies problems of statewide significance, including “social problems as well as problems involving environmental pollution and destruction of vital ecological systems, which threaten our very existence.”¹⁶⁸ Third, it recognizes the ways in which localities cannot (or do not) address the identified problems.¹⁶⁹ Fourth, it analyzes the possibility of extralocal reforms which do not involve state governments.¹⁷⁰ Fifth, it asserts that states could do much more to tackle the problem identified.¹⁷¹

This Article has thus far applied the second, third, and fourth components of this underlying rationale for the quiet revolution to the emerging green-building movement—a movement which, of course, did not exist in today’s robust form at the time Bosselman and Callies were writing their book. Reviving the second component of their classic argument, Part II examined how the negative extralocal impact of conventional construction has statewide (if not worldwide) consequences. Part III analyzed the third component of the argument justifying a new quiet revolution: the failure of localities to address the negative impact of conventional construction. Taking up the fourth component of the argument, Part IV considered alternatives to state involvement in land use—namely regional and national involvement, and found that neither is adequate. This Part finally considers the fifth component of the argument supporting the quiet revolution with respect to sustainable design: why states? In asking this question, this Article does not assert that states—or any other single level of government, for that matter—should address sustainability dilemma alone; an integrated approach is necessary, and each level of government has something to offer. Instead, this Article aims to focus attention on the inactivity of states relative to their potential and their powers.

States have never fully exercised their land use authority.¹⁷² Instead, they have explicitly delegated their police power to regulate land use to local governments.¹⁷³ Through enabling acts relating to zoning and design controls, states dictate how

167. BOSSELMAN & CALLIES, *supra* note 1, at 2–3.

168. *Id.* at 3.

169. *Id.*

170. *Id.* at 4.

171. *Id.* at 327.

172. *Id.* at 2–3.

173. *Id.*

localities may regulate land use.¹⁷⁴ States can expand or contract localities' decision-making powers by amending these enabling acts or by enacting unrelated legislation. With the power to pass laws, which affect each locality, states have the power to reform the land use regulation system in a significant way to effect change on the wide scale, which the evidence suggests is necessary. Yet no state has demonstrated a willingness to change local land use laws to respond to the mounting evidence against conventional construction.

The states' unresponsiveness in the land use regulation context does not necessarily reflect an antipathy toward the green-building movement. To the contrary, state lawmakers have demonstrated a willingness to promote green building in other important areas. Approximately a dozen states have undertaken a variety of whole-building sustainable-design initiatives, including green-building tax credits and mandatory design requirements for public buildings.¹⁷⁵ In addition, many states provide financial incentives for the installation or utilization of specific green technologies. For the past thirty years, for example, about half of the states have provided at least one form of favorable tax treatment for solar collectors, including depreciation allowances, lower tax rates for solar collectors, property or sales tax exemptions, and income tax credits.¹⁷⁶ Despite this favorable treatment, only one percent of power

174. See ADVISORY COMM. ON ZONING, U.S. DEP'T OF COMMERCE, A STANDARD STATE ZONING ENABLING ACT 4-5 (1926) (permitting the legislative body of cities and incorporated villages to regulate "height, number of stories, and size of buildings and other structures, the percentage of lot that may be occupied, the size of yards, courts, and other open spaces, the density of population, and the location and use of buildings, structures, and land for trade, industry, residence, or other purposes").

175. See DuBose et al., *supra* note 66, at 161 (describing how green-building programs in eleven states evolved); Patricia E. Salkin, *Squaring the Circle on Sprawl: What More Can We Do? Progress Toward Sustainable Land Use in the States*, 16 WIDENER L.J. 787, 790-821 (2007) (describing various state programs relating to "smart growth"); Christopher D. Montez & Darren Olsen, *The LEED Green Building Rating System and Related Legislation and Governmental Standards Concerning Sustainable Construction*, CONSTRUCTION LAW., Summer 2005, at 38, 39-41.

176. Dale D. Goble, Comment, *Solar Rights: Guaranteeing a Place in the Sun*, 57 OR. L. REV. 94, 118-19 (1977) (listing state statutes); see also Stephen B. Johnson, Note, *State Approaches to Solar Legislation: A Survey*, 1 SOLAR L. REP. 55, 58-63 (1979) (describing twenty-eight states "offering real property tax exemptions for solar energy systems"); *id.* at 73-77 (describing the sixteen states which provided income tax incentives for solar energy systems at the time of publication).

generated in the United States comes from the sun.¹⁷⁷ Incentives alone have not stimulated widespread solar collector use because our legal system fails to assure access to, or use of, green-building technologies.¹⁷⁸ Reform of the land use system can provide assurances and standards for those who hope to build green.

State legislatures should go beyond incentives and enact wide-scale land use reform which does not compromise local autonomy. As a practical matter, localities are already limited in their ability to exercise traditional land use regulatory powers.¹⁷⁹ This Article does not argue that states should limit localities even further by reclaiming all land use regulatory powers. In the absence of local leadership in an area as significant as green building, however, states—which enable localities to enact zoning, aesthetic review and historic preservation ordinances in the first place—can and should work through the existing land use regime to limit localities' powers. In crafting such limitations, states must take into account—and even embrace—the structure of the existing land use regime. Indeed, one of the major tenets of the quiet revolution is that states should “relate in a logical manner to the continuing need for local participation.”¹⁸⁰ According to Bosselman and Callies, even if localities' land use regulatory schemes produce undesirable results, their role must be respected.¹⁸¹ A land use revolution may only be quiet—and successful—if it protects local autonomy.

177. Yuliya Chernova, *Shedding Light on Solar*, WALL ST. J., June 30, 2008, at R6 (“[D]espite federal and some state government subsidies that have helped push up demand, solar power still accounts for less than one percent of power generation in the U.S. That’s because even with subsidies, solar power remains expensive compared with energy based on traditional fuels like coal and natural gas.”).

178. W. Wade Berryhill & William H. Parcell III, *Guaranteeing Solar Access in Virginia*, 13 U. RICH. L. REV. 423, 426 (1979) (“Most authorities agree that the guarantee of solar access is the single most important legal issue concerning solar energy.”).

179. Barron & Frug, *supra* note 156, at 265–66 (explaining that localities sometimes feel constrained by “large structural forces over which they have little effective power given the limited reach of their jurisdiction”).

180. BOSSELMAN & CALLIES, *supra* note 1, at 320.

181. *Id.* at 3 (“A recognition of the inadequacies of local [control] must not, however, cause the values of citizen participation and local control . . . to be submerged completely in some anonymous state bureaucracy.”).

B. EXPERIMENTS IN STATE REFORM

A final question remains: how can states push localities to counteract the wide-scale problems created by conventional construction without infringing on local autonomy? In the broader context of land use regulation, several states have enacted legislation which directs localities to prioritize certain factors in decision making, to undertake studies, to designate financial resources, or to manage growth in ways the state approves.¹⁸² These reforms do not constrain autonomy but instead work within existing relationships between state and local governments to provide guidelines for land use decisions.¹⁸³ In the green-building context, some states, such as California, Connecticut, and Arizona, have already begun experimenting with state-level reforms which preserve the two core values of the quiet revolution: the preservation of the existing land use system and the protection of local autonomy.¹⁸⁴ They do not aim to rewrite existing land use regulations on a locality-by-locality basis, but instead aim to create statewide rules which either influence land use decision making or which address sustainable-design techniques which have not been addressed by localities.

The California legislature, for example, prevents local governments from denying solar energy permits on the basis of aesthetics alone.¹⁸⁵ In reviewing a building permit for a solar energy system, a locality may only consider health and safety issues, and if the system "could have a specific, adverse impact upon the public health and safety," the locality may require the applicant to apply for a use permit in addition to the building permit.¹⁸⁶ This use permit cannot be withheld unless the locality "makes written findings based upon substantial evidence in the record that the proposed installation would have a specific, adverse impact upon the public health or safety, and there is no feasible method to satisfactorily mitigate or avoid the specific, adverse impact."¹⁸⁷ This language makes localities' denial of solar energy systems extremely difficult. As a result of this legis-

182. John R. Nolon, *Champions of Change: Reinventing Democracy Through Land Law Reform*, 30 HARV. ENVTL. L. REV. 1, 26-29 (2006) (describing, for example, the State of Wisconsin mandate that each city develop a plan which incorporates specific smart growth elements, and the State of Iowa law that conservation districts design and enforce erosion-control measures).

183. *Id.*

184. *See id.*

185. CAL. GOV'T CODE § 65850.5 (West 2007).

186. *Id.* § 65850.5(b).

187. *Id.* § 65850.5(c).

lation, most California cities exempt solar panels from the aesthetic review process altogether.¹⁸⁸

Connecticut, similarly, limits how far historic district commissions can go to regulate solar panels. Its historic district enabling statute, which allows localities to create historic districts, states that a local historic commission cannot block the construction of a solar energy system (or other systems which use renewable resources) unless such a system “cannot be installed without substantially impairing the historic character and appearance of the district.”¹⁸⁹ Connecticut’s protection of solar panels clearly leaves more to the historic commission’s discretion than does California’s: local commissioners may easily find that a solar panel “substantially impairs” the aesthetics of a historic building. Yet by including this language in its historic district enabling statute, the state has made a significant attempt to address the evolving interplay between green building and design controls.

Finally, Arizona is a leader among the states in accommodating gray water.¹⁹⁰ Most localities fail to address gray water—defined as any untreated household wastewater excluding toilet water—which can be used to water lawns, irrigate crops, or flush toilets. Three or four LEED water efficiency points can be earned by recycling gray water.¹⁹¹ Despite gray water comprising fifty to eighty percent of domestic wastewater, and despite its reusability after relatively inexpensive treatment, localities often make the recycling of gray water very difficult.¹⁹²

188. Groc, *supra* note 90, at 6; Todd J. Wenzel, *State LEEDs way in Green Building Movement*, RECORDER, Mar. 26, 2007, at 16 (describing Marin County as one example which “speeds permit processing and waives some design review” for sustainable technologies).

189. CONN. GEN. STAT. § 7-147f(a) (2007).

190. Larry Gallagher, *How Does Your Garden Grow?*, ONEARTH, Fall 2005, at 12 (“At the forefront are Arizona and New Mexico, where reining in water use is an obvious priority.”); ART LUDWIG, OASIS DESIGN, GREYWATER POLICY PACKET 31 (2005), available at <http://oasisdesign.net/downloads/GWPolyPacket.pdf>.

191. U.S. GREEN BLDG. COUNCIL, LEED FOR NEW CONSTRUCTION & MAJOR RENOVATIONS: VERSION 2.2, at 27, 29–32 (2005), available at <http://www.usgbc.org/ShowFile.aspx?DocumentID=1095>.

192. LUDWIG, *supra* note 190, at 3 (calling Arizona’s gray water statute a model for other jurisdictions). Other states have not been as successful as Arizona: although California in 1994 became the first state to incorporate gray water systems into its statewide plumbing code, the law is so restrictive that an underground movement of gray water proponents—as many as two thousand in the Bay Area alone—operate gray water systems illegally. Gregory Dicum, *The Dirty Water Underground*, N.Y. TIMES, May 31, 2007, at F4.

Local laws do not always differentiate between gray water and black water (toilet water), which is considered to be sewage and which cannot be used for any reason unless it is thoroughly treated.¹⁹³ Arizona provides for three different tiers of gray water users; it does not require permits for household gray water recycling of less than four hundred gallons per day and it specifies performance standards instead of prescriptive rules for the remainder of the users.¹⁹⁴ Through this statute, the state provides guidance on an issue with which localities have not traditionally been involved, presenting an environmentally responsible approach to state regulation which should be replicated elsewhere.

Today, legislators in several states have joined legal scholars in recognizing the delicate balance between states and localities when it comes to land use issues.¹⁹⁵ The three preceding examples demonstrate the benefits of state-by-state experimentation—experimentation which could not occur at a federal level, where decision making is both too centralized and too distant from the level at which land use decisions typically occur, or at the regional level, which despite scholars' support does not really even exist. Many more states should weigh this balance to find innovative ways to preserve both the environment and local autonomy.

CONCLUSION

Local land use and construction laws sit on the front line of the sustainable-design revolution. As this Article shows, zoning ordinances and design control laws are motivated by principles that are fully consistent with and may actually be advanced by green building. Unfortunately, however, these laws often serve as practical barriers to sustainable design. Comprehensive green-building reforms at the local level, or reforms at the state level which impact local decision making, could have a significant effect on the environment, public health, energy security, and the preservation of precious resources.

193. See Dean Fosdick, *Recycling Water Is a Gray Area*, WRAL, Nov. 27, 2007, http://www.wral.com/lifestyles/house_and_home/story/2088188/ (describing the consequences of prohibiting gray water usage in the southeastern United States).

194. ARIZ. ADMIN. CODE § R18-9-711 to -720 (2007).

195. See, e.g., Briffault, *supra* note 157, at 271 (arguing that “states need to take a greater role in guiding, monitoring, and, *where appropriate*, intervening with respect to” local land use decisions) (emphasis added).

In light of the opportunity to replace or rebuild three-quarters of our building stock in the next twenty years,¹⁹⁶ the issues and challenges considered in this Article take on a high degree of urgency. If policymakers find ways to reduce emissions from these future buildings, as well as from the buildings that already exist, then thirty percent of current greenhouse gas emissions might be avoided by 2030, according to the respected Intergovernmental Panel on Climate Change.¹⁹⁷ With the opportunity to make such dramatic progress in so short a period, making our existing eighty-one million buildings and our future building stock more green deserves to be a national priority.

As this Article argues, it may be time to gather up the fallen standard of the quiet revolution which was announced thirty-seven years ago and which eloquently and forcefully argued for greater involvement by state governments in light of local government inadequacies. While the states cannot work alone—all levels of government must advance this cause—they should no longer be overlooked as a source of land use regulatory power. The green-building movement sweeping across the country may well herald not only a revolution in building design, but also a revolution in the role of states in regulating land use.

196. See *supra* text accompanying note 11.

197. WORKING GROUP III, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: MITIGATION 13 (B. Mets et al. eds., 2007).